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**Civil Engineering**

**LOAD TESTING OF GENERATORS**



**COMPLIANCE WITH THIS PUBLICATION IS MANDATORY**

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This instruction implements responsibilities, in accordance with AFI 32-1062, *Electrical Power Plants and Generators*, and AFI 32-1063, *Electrical Power Systems*, between the 305th Civil Engineering Squadron (CES) and using organizations, in the operation and maintenance of Emergency Power Units (EPUs) at McGuire Air Force Base, New Jersey.

**SUMMARY OF REVISIONS**

This is the initial publication of MAFBI 32-1001, which revises MAFBR 91-5. It removes obsolete information and was redesigned to bring this publication in line with current Electronic Transfer System Standards.

**1. General.** To ensure emergency power is available at essential facilities, both the CES and using organizations must be assigned specific responsibilities. The CES is, in general, responsible for field-level maintenance and will give generator operator training for using agency personnel required to run the emergency power unit in case of a commercial power failure. The using organization, jointly with electrical power production personnel, is responsible for operator maintenance.

**2. Mission.** To ensure the capability to launch aircraft in support of emergency war operations and to maintain the day-to-day operation in times of commercial power failures and load shedding.

**3. The Base Civil Engineer will:**

- 3.1. Perform field-type maintenance on EPUs concerned.
- 3.2. Perform lube oil changes, battery changes, and similar types of maintenance.

- 3.3. Maintain proper levels of fuel, oil, coolant, and battery electrolyte.
- 3.4. Schedule fueling of units if tank levels are below one-half when observed on maintenance checks.
- 3.5. Provide operator training to organizations to ensure all designated personnel can start and operate the EPU.
  - 3.5.1. Maintain a list of people who are able to operate an EPU. The list will be kept in the Power Production Shop, on file at the using organization, and posted near the EPU. The letter will be signed by both the trainer and trainee and dated as of date trained.
  - 3.5.2. Coordinate the need for recertification with the using organizational commander (or his/her designated representative).
  - 3.5.3. Update the list of operators at least once each year.
- 3.6. Perform joint operational testing of all EPU's with a qualified member of the using organization.
  - 3.6.1. Ensure testing of the automatic start/transfer system if the unit has one.
  - 3.6.2. Ensure engine driven generator sets are exercised under actual load conditions each month for one (1) continuous hour after the unit reaches operating temperature.
  - 3.6.3. Complete all entries on AF Form 487, **Emergency Generator Operating Log**. The forms will be kept on file in the Power Production Shop.
  - 3.6.4. Ensure all switches are reset and positioned correctly to reduce response time to a minimum in the event of a commercial power loss.
  - 3.6.5. Defer operational exercise of emergency systems when a prime power loss has occurred between scheduled exercises and the emergency power system performed satisfactorily.
  - 3.6.6. Inspect each site in between generator operation. Check all fuel, oil, and coolant levels. Check all switches for proper positions; correct any discrepancies.
  - 3.6.7. Leave the EPU facility in a neat, clean condition after maintenance visits.
  - 3.6.8. Respond quickly to repair EPU malfunctions. In the event of multiple EPU malfunctions, power production personnel will respond in priority order sequence as represented in the most current generator priority listing.
  - 3.6.9. Maintain an information folder complete with historical records for each EPU to include AF Form 719, **Historical Record Electrical Generator and System**.
  - 3.6.10. Post clear and concise emergency power system operating instructions and single line drawings for electric, fuel and external coolant at each operating location.

#### 4. The Using Organization will:

- 4.1. Ensure only certified operators operate the electrical systems.
  - 4.1.1. Assign at least one key individual in the unit to be responsible for coordinating all training needs, and be a central point of contact for discussing all problems concerning the operation of the EPU serving the unit.

4.1.2. Inform Civil Engineering of training needs as soon as they are known. Identify personnel to be trained by name and rank via letter addressed to Civil Engineering.

4.2. Perform joint operational testing of the EPU under actual emergency load conditions for the time required with power production personnel. The operational test will include a check of fuel, lube oil, coolant, and battery electrolyte levels.

4.3. Start and operate EPUs in case of a commercial power loss.

4.4. Notify Civil Engineering Customer Service whenever an EPU is placed in operation, as well as for problems encountered during EPU start up or operation.

4.5. Secure the generator after the resumption of commercial power. Perform post-operation inspection to include checking fuel and oil levels.

4.6. Check EPU and transfer switch once a week to ensure all switches are set in the proper positions.

4.7. Check fuel levels each week to ensure at least one-half tank of fuel is available. Notify Civil Engineering Customer Service if fuel is needed.

4.8. Ensure good general housekeeping of EPU facilities. Do not store lawn mowers, gasoline, and other miscellaneous items inside of the generator facility.

4.9. Exercise EPUs supporting navigational aids for air traffic control facilities according to procedures in paragraph 3.6. and AFI 13-203, *Air Traffic Control* (formerly AFR 60-5). Prudent use of generators (prevent wear) and fuel (energy resources) must be considered when running a generator for weather conditions.

**5. Fuel Requirements.** If a low fuel level is identified after normal duty hours, and the EPU is not operating, notify Civil Engineering Customer Service, for fuel delivery on the next duty day.

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